

CLAIMS

What is claimed is:

- 1 1. A method for traversing a firewall, comprising:
 - 2 initiating a first connection;
 - 3 evaluating the first connection for a response from a remote system indicating a
 - 4 successful first connection;
 - 5 initiating a second connection if a successful first connection is not established;
 - 6 evaluating the second connection for a response from a remote system indicating a
 - 7 successful second connection;
 - 8 initiating a third connection if a successful second connection is not established; and
 - 9 evaluating the third connection for a response from a remote system indicating a
 - 10 successful third connection.
- 1 2. The method of claim 1, wherein the first connection, the second connection, and the third
 - 2 connection is selected from the group consisting of Transmission Control Protocol (TCP)
 - 3 connection, User Datagram Protocol (UDP) connection, hypertext transfer protocol (HTTP)
 - 4 connection, hypertext transfer protocol (HTTP) connection via a proxy connection, and Internet
 - 5 Control Message Protocol (ICMP) connection.
- 1 3. The method according to claim 2, wherein initiating a TCP connection comprises initiating a
 - 2 TCP connection to a predefined address and port.

- 1 4. The method according to claim 2, wherein initiating a HTTP connection comprises initiating
2 a HTTP connection to a predefined address using port 80.
- 1 5. The method according to claim 2, wherein initiating a HTTP connection via a proxy
2 connection further comprises determining a likely proxy address and port.
- 1 6. The method according to claim 5, wherein determining a likely proxy address and port further
2 comprises packet sniffing.
- 1 7. The method according to claim 6, wherein packet sniffing further comprises:
2 sampling packets;
3 extracting information from the sampled packets; and
4 building a database of likely proxy addresses and ports.
- 1 8. The method according to claim 7, wherein extracting information from the sampled packets
2 comprises extracting TCP port information.
- 1 9. The method according to claim 7, wherein extracting information from the sampled packets
2 comprises examining TCP packets for HTTP data.
- 1 10. The method of claim 2 further comprising using Internet Protocol (IP).

1 11. The method according to claim 10, wherein initiating a HTTP connection via a proxy
2 connection further comprises determining a likely proxy address by sampling packets and
3 extracting IP addresses.

1 12. The method of claim 2 further comprising using Ethernet with the Transmission Control
2 Protocol (TCP).

1 13. The method according to claim 12, wherein initiating a HTTP connection via a proxy
2 connection further comprises determining a likely proxy address by sampling packets and
3 extracting Ethernet addresses.

1 14. A machine-readable medium having stored thereon instructions, which when executed by a
2 processor, causes said processor to perform the following:
3 initiate a first connection;
4 evaluate the first connection for a response from a remote system indicating a successful
5 first connection;
6 initiate a second connection if a successful first connection is not established;
7 evaluate the second connection for a response from a remote system indicating a
8 successful second connection;
9 initiate a third connection if a successful second connection is not established; and
10 evaluate the third connection for a response from a remote system indicating a successful
11 third connection.

1 15. The machine-readable medium according to claim 14, further configuring said processor to
2 perform the following:

3 implement the first connection, the second connection, and the third connection selected
4 from the group consisting of Transmission Control Protocol (TCP) connection, User Datagram
5 Protocol (UDP) connection, hypertext transfer protocol (HTTP) connection, hypertext transfer
6 protocol (HTTP) proxy connection, and Internet Control Message Protocol (ICMP) connection.

1 16. The machine-readable medium according to claim 15, further configuring said processor to
2 perform the following:

3 examine network traffic; and
4 build a database of parameters likely to allow establishment of a HTTP connection via a
5 proxy connection.

1 17. A firewall traversal system comprising:

2 a main system coupled to storage;
3 a communication subsystem coupled to the main system and a communication medium;
4 a packet examining subsystem coupled to the communication subsystem; and
5 a database system coupled to the packet examining subsystem and the main system.

1 18. The system of claim 17, wherein the packet examining subsystem extracts port information.

1 19. The system of claim 18, wherein the packet examining subsystem extracts the port
2 information based upon examining packet data content.

1 20. The system of claim 17, wherein the packet examining subsystem extracts address
2 information.

1 21. The system of claim 20, wherein the packet examining subsystem extracts the address
2 information based upon examining packet data content.

1 22. A method for traversing a firewall, comprising:

2 means for initiating a first connection;

3 means for evaluating the first connection for a response from a remote system indicating
4 a successful first connection;

5 means for initiating a second connection if a successful first connection is not
6 established;

7 means for evaluating the second connection for a response from a remote system
8 indicating a successful second connection;

9 means for initiating a third connection if a successful second connection is not
10 established; and

11 means for evaluating the third connection for a response from a remote system indicating
12 a successful third connection.

1 23. The apparatus of claim 22, wherein means for initiating the first connection, means for
2 initiating the second connection, and means for initiating the third connection further comprises
3 means for initiating a connection selected from the group consisting of Transmission Control
4 Protocol (TCP) connection, User Datagram Protocol (UDP) connection, hypertext transfer

- 5 protocol (HTTP) connection, hypertext transfer protocol (HTTP) proxy connection, and Internet
6 Control Message Protocol (ICMP) connection.

- 1 24. The apparatus of claim 23, wherein means for initiating a HTTP connection via a proxy
2 connection further comprises determining a likely proxy address by sniffing packets and
3 extracting information from the packets.

- 1 25. The apparatus of claim 23, wherein means for initiating a HTTP connection via a proxy
2 connection further comprises determining a likely proxy address by receiving information from a
3 computer connected to the firewall.

- 1 26. The apparatus of claim 22, further comprising means for updating firewall traversal
2 strategies.